<u>REMARKS</u>

Independent claim 23 was rejected under 35 U.S.C. § 102(b) over Hutchins (U.S. Patent No. 5,208,897). This rejection is respectfully traversed. Merely because Hutchins also uses the keywords "syllables," "words," "digitized ...speech," doesn't mean that Hutchins discloses or suggests a system or method that anticipates claim 23. Applicant objects to the manner in which the Examiner attempts to bridge gaps in Hutchins with what he believes to be "inherent." Further, Hutchins teaches a rudimentary system that can only recognize a small set of commands for an aircraft cockpit application (col. 3, lines 4-8). Hutchins does not recognize continuous speech but rather discrete commands. A closer look at Hutchins in view of claim 23 will yield the conclusion that Hutchins does not anticipate claim 23.

For the convenience of the Examiner, claim 23 is reproduced below:

23.   A method for speech recognition, comprising:
receiving a digital data representation of speech comprising a stream of binary bits;
grouping sets of the binary bits and mapping each set to a representation of a letter;
grouping the representations of letters into words, the words being separated by a character representation of pause in the speech;
determining the number of syllables in the digital data representation of the speech for a corresponding word; and
searching a library containing a plurality of words according to the representations of letters and the number of syllables of each word, and providing a matched word in response thereto.

The Examiner attempts to frame Hutchins in the language of claim 23: "Hutchins' method includes the following steps: the digitizing of an audio input...and then after passing the digitized data through an 'acoustics to subsyllables' unit generating a stream of binary data...where the ASCII data indicated is **inherently** a binary representation of characters..." (citations omitted; emphasis added). Applicant respectfully disagrees with this characterization of Hutchins.

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Claim 23 performs the steps of "receiving a digital data representation of speech comprising a stream of binary bits; grouping sets of the binary bits and mapping each set to a representation of a letter." This transformative step going from a digital representation of the speech (in other words, a digital representation of the sounds) to letters forming words is not taught or suggested in Hutchins. As stated in Hutchins col. 5, lines 42-44 and 48-50, the output of acoustics to subsyllables module 16 is output frames of "SubSyllable symbols that characterizes major and minor phonetic attributes of the segment." The "frames" are designated by "silence, frication, stable vowel, and change." FIGURE 9 of Hutchins is a table that provides the phonemes in the output frames. These phonemes are phonetically-based such as "tS" for the "CH" sound, "dZ" for the "Dge" sound, and "u" for the "OO" sound. Further examples shown in FIGURE 9 include "Z" for the S sound in "measure," "Q" for the TH sound in "thin," "&" for the U sound in "but," etc. Although this output is indicated as "ASCII spelling of subsyllables" in FIGURE 4A, it is clear that this "ASCII spelling" is of phonemes listed in FIUGRE 9. As we know, phonemes are not the same as letters or characters that form the words.

Further, Hutchins clearly describes a process of going from subsyllables to syllables and then syllables to words (Col. 11, lines 25-42). Claim 23, to the contrary, maps digital binary bits directly to letters that form the words themselves. The binary bit-to-letters mapping described in claim 23 does not operate on the basis of syllables. Applicant strongly objects to the Examiner's wholesale recasting of Hutchins in the framework set forth in claim 23. Claim 23 refer to syllables only in the context of "determining the number of syllables in the digital data representation of the speech for a corresponding word." The noted number of syllables is used for "searching a library containing a plurality of words according to the representations of letters and the number of syllables of each word, and providing a matched word in response thereto." Hutchins clearly lacks this limitation as Hutchins does not use the number of syllables in this manner or any manner. If the Examiner will read Hutchins col. 11, lines 25-42, he will see that the syllable-to-word mapping step of Hutchins makes one or more passes through the syllables and attempts to join adjacent syllables together to see if they form known words. This is contrary to the claimed invention.

Claim 23 also teaches, "grouping the representations of letters into words, the words being separated by a character representation of pause in the speech." Hutchins clearly does not show or suggest this step. To the contrary, Hutchins "evaluates all combinations of incoming options against a predetermined database 22 of SubSyllable spellings...The matching process carried out by module 20 accesses a grammar process 24 and a stored table of non-terminals 26....Matches that produces a complete word or syllable are output to the next stage." (Col. 9, lines 52-64). This process is discussed further in Col. 11, lines 26-42. The Examiner attempted to fill this void by stating that "words are inherently separated by a space associated with a pause in speech." However, Hutchins does not explicitly or implicitly address this. Instead, Hutchins relies on the use of a database that attempts to piece together syllables to see if they form recognizable words. Hutchins gave the example of forming the word "FOURTEEN" formed out of two adjacent syllables, "FOUR" and "TEEN." Such methodology does not use pauses in the speech to delineate words.

Applicant also respectfully traverse the Examiner's rejection of claims 25, 28 and 29, over Hutchins. These claims depend from claim 23 and provide additional limitations thereto. These claims are therefore also patentable over Hutchins for the same reasons as set forth above.

Independent claim 34 was rejected under 35 U.S.C. § 102(b) over Hutchins. This rejection is respectfully traversed.

     34.   A method for speech recognition, comprising:
     receiving a digital data representation of speech comprising a stream of binary bits;
     grouping a consecutive number of the binary bits and mapping each group of binary bits to a letter;
     grouping the letters into words, the words being separated by a character representation of pause in the speech;
     determining the number of syllables in the digital data representation of the speech for each word; and

searching a library containing a plurality of words according to the character representation and the number of syllables of each word, and providing a matched word in response thereto.

The same arguments set forth above with regard to claim 23 are also applicable to the rejection of claim 34 over Hutchins. More specifically, Hutchins does not show or suggest "grouping a consecutive number of the binary bits and mapping each group of binary bits to a letter" as Hutchins operates on phonemes or subsyllables, not letters that ultimately form words. Hutchins also does not teach or suggest "grouping the letters into words, the words being separated by a character representation of pause in the speech." As discussed above, Hutchins does not group the letters into words but instead pieces together subsyllables to form syllables and words. Hutchins also does not use "a character representation of pause in the speech" to demarcate words. Further, Hutchins does not provide for "determining the number of syllables in the digital data representation of the speech for each word; and searching a library containing a plurality of words according to the character representation and the number of syllables of each word, and providing a matched word in response thereto." Hutchins may operate with syllables but Hutchins does not use the number of syllables in the word to narrow the search in the database or to arrange the words in the database. For these and other reasons, claim 34 is also patentable in view of Hutchins.

Applicant also respectfully traverse the Examiner's rejection of claims 38 and 39 over Hutchins. These claims depend from claim 34 and provide additional limitations thereto. These claims are therefore also patentable over Hutchins for the same reasons as set forth above.

Claim 24 was rejected under 35 U.S.C. § 103(a) over Hutchins and McNamara. This rejection is respectfully traversed. Claim 24 depends from independent claim 23, which as established above, is patentable over Hutchins. There is also no teaching to combine Hutchins and McNamara. Therefore claim 24, which adds the limitation of "grouping sets of eight binary bits," is also patentable over Hutchins even in view of McNamara.

Claim 26 was also rejected under 35 U.S.C. § 103(a) over Hutchins and McNamara. This rejection is respectfully traversed. Claim 26 depends from independent claim 23, which as established above, is patentable over Hutchins. There is also no teaching to combine Hutchins and McNamara. Therefore claim 26, which adds the limitation of "querying a table comprising binary bit sets and their respective character representation of speech," is not obvious in view of Hutchins and McNamara and is therefore patentable.

Claim 35 was also rejected under 35 U.S.C. § 103(a) over Hutchins and McNamara. This rejection is respectfully traversed. Claim 35 depends from independent claim 34, which as established above, is patentable over Hutchins. There is also no teaching to combine Hutchins and McNamara. Therefore claim 35, which adds the limitation of "grouping sets of eight binary bits," is not obvious in view of Hutchins and McNamara and is therefore patentable.

Claim 36 was also rejected under 35 U.S.C. § 103(a) over Hutchins and McNamara. This rejection is respectfully traversed. Claim 36 depends from independent claim 34, which as established above, is patentable over Hutchins. There is also no teaching to combine Hutchins and McNamara. Therefore claim 36, which adds the limitation of "querying a table comprising binary bit groups and their respective character representation of speech," is not obvious in view of Hutchins and McNamara and is therefore patentable.

The Examiner also rejected claim 27 under 35 U.S.C. § 103(a) over Hutchins and Gould. This rejection is respectfully traversed. Claim 27 depends from independent claim 23, which as established above, is patentable over Hutchins. There is also no teaching to combine Hutchins and Gould. Therefore claim 27, which adds the limitation of "receiving the binary bit stream from a sound card," is also not obvious in view of Hutchins and Gould and is therefore patentable.

Claims 30-33 were also rejected under 35 U.S.C. § 103(a) over Hutchins and Gould. This rejection is respectfully traversed. Claims 30-33 depend from independent claim 23, which as established above, is patentable over Hutchins. There is also no teaching to combine Hutchins and Gould. Therefore claims 30-33, which add various limitations to claim 23, are not obvious in view of Hutchins and Gould. Claims 30-33 are therefore patentable.

The Examiner also rejected claim 37 under 35 U.S.C. § 103(a) over Hutchins and Gould. This rejection is respectfully traversed. Claim 37 depends from independent claim 34, which as established above, is patentable over Hutchins. There is also no teaching to combine Hutchins and Gould. Therefore claim 37, which adds the limitation of "mapping pause in the speech to a space," is also not obvious in view of Hutchins and Gould and is therefore patentable.

Claims 40-43 were also rejected under 35 U.S.C. § 103(a) over Hutchins and Gould. This rejection is respectfully traversed. Claims 40-43 depend from independent claim 34, which as established above, is patentable over Hutchins. There is also no teaching to combine Hutchins and Gould. Therefore claims 40-43, which add various limitations to claim 34 are not obvious in view of Hutchins and Gould and are therefore patentable.

The Examiner also rejected independent claim 44 under 35 U.S.C. § 103(a) over Hutchins and Gould. This rejection is respectfully traversed. Claim 44 is reproduced below:

44.   A speech recognition method, comprising:
receiving a binary bit stream representation of a user's training speech comprising text of known words;
mapping the received binary bit stream to the known words;
storing the mapping of binary bit stream to known words in a binary-to-letter table;
receiving a binary bit stream representation of spoken speech;
grouping each eight binary bits and converting each binary bit group into a letter by querying the binary-to-letter table;

grouping letters into words;

determining the number of syllables in each word; and

searching a library according to the grouped letters and number of syllables and providing a matched word in response thereto.

Applicant respectfully submit that there is no teaching or suggestion to combine Hutchins and Gould. Hutchins teaches a rudimentary system that can only recognize a small set of commands for an aircraft cockpit application (col. 3, lines 4-8). Hutchins does not recognize continuous speech but rather discrete commands. Gould, on the other hand, teaches the recognition of continuous speech. These two systems cannot be more dis-similar. Further, Gould does not teach, "receiving a binary bit stream representation of a user's training speech comprising text of known words; mapping the received binary bit stream to the known words; storing the mapping of binary bit stream to known words in a binary-to-letter table." To the contrary, The passages in column 1 and column 5 in Gould cited by the Examiner does not describe anything related to training as claimed in claim 44. The training in Gould is a process by which a user may call up a correction window to correct an incorrectly recognized word. Gould does not disclose or claim a training process. As established above, Hutchins operates on phonemes and connecting phonemes to form subsyllables and syllables. Hutchins therefore does not describe or suggest the limitations in claim 44. The Hutchins and Gould combination does not render claim 44 obvious and claim 44 should be allowed.

Applicant has made an earnest attempt to place this case in condition for immediate allowance. For the foregoing reasons and for other reasons clearly apparent, Applicant respectfully requests reconsideration and full allowance of all pending claims.

The Director is hereby authorized to charge any fees or credit any overpayment associated with this Response to Deposit Account No. 13-4900 of Munsch Hardt Kopf & Harr, P.C.

Respectfully submitted,
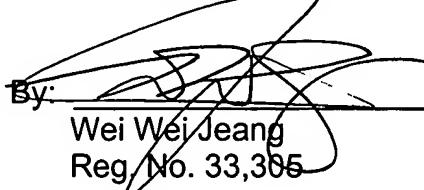
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